

## WHAT IS CLAIMED IS:

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1 A system for producing an integrated display audiovisual presentation, comprising

5 a source of a first audiovisual presentation, wherein the first audiovisual presentation comprises at least one reference point and at least one reference object, wherein at least a selected one reference point is associated with a location on a selected one reference object,

10 a source of user audiovisual information, wherein the user audiovisual information comprises at least one replacement point and at least one replacement object image, wherein at least a selected one replacement point is associated with a location on a selected replacement object image,

correlation means responsive to the first audiovisual presentation and the user audiovisual information, for correlating at least one selected reference point with at least one selected replacement point,

15 association means responsive to the correlation means, for associating a selected one reference object with a selected one replacement object image, and

20 compositing means responsive to the first audiovisual presentation, the user audiovisual information, the association means, and the correlation means, for compositing at least one replacement object image with the first audiovisual presentation, producing an integrated display audiovisual presentation, wherein at least a selected portion of the replacement object image replaces a selected portion of the first audiovisual presentation.

25 2. The system as in claim 1, wherein the first audiovisual presentation further comprises a video input signal.

3. The system as in claim 2, wherein the video input signal comprises a time-ordered sequence of video images.

4. The system as in claim 3, wherein the correlation means further comprises recognition means responsive to the video input signal, for recognizing at least a selected one reference object within at least a selected one video image of the time-ordered sequence.

5. The system as in claim 4, wherein the recognition means further recognizes at least one reference point on the associated reference object.

6. The system as in claim 4, wherein the recognition means comprises at least one of pattern recognition means and image recognition means.

7. The system as in claim 3, wherein the first audiovisual presentation further comprises a reference object information identifying and associated with at least a selected one reference object.

8. The system as in claim 7, wherein the reference object information further comprises identification of at least one selected reference point on the selected one reference object.

9. The system as in claim 1, wherein the first audiovisual presentation further comprises a time-ordered sequence of video images digitized and encoded into an encoded digital signal.

10. The system as in claim 9,

wherein the correlation means is further responsive to at least a selected one of the plurality of MPEG motion vectors.

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16. The system as in claim 1, wherein the user audiovisual information further comprises user object geometric information.

17. The system as in claim 16, wherein:  
the correlating means further comprises recognition means for identifying at least a selected one reference object within the first audiovisual presentation, and  
the compositing means further comprises geometric transformation means for geometrically transforming the user object geometric information responsive to the recognition means.

18. The system as in claim 16, wherein the compositing means further comprises geometric transformation means for geometrically transforming the user object geometric information producing transformed user object geometric information, responsive to the selected one reference object.

19. The system as in claim 16, wherein the replacement object image comprises texture map image data representative of at least one selected user object as viewed from at least one predefined viewing position relative to the selected user object.

20. The system as in claim 19, wherein the compositing means selects a portion of the texture map image data responsive to the correlation means.

21. The system as in claim 20, wherein the compositing means further comprises geometric transformation means for geometrically transforming the user object geometric information producing transformed user object geometric information, responsive to the selected one reference object.

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providing a first audiovisual presentation, wherein the first audiovisual presentation comprises at least one reference point and at least one reference object,

wherein at least a selected one reference point is associated with a location on a selected one reference object;

providing user audiovisual information, wherein the user audiovisual information comprises at least one replacement point and at least one replacement object image, wherein at least a selected one replacement point is associated with a location on a selected replacement object image;

correlating at least one selected reference point with at least one selected replacement point responsive to the first audiovisual presentation and the user audiovisual information;

associating a selected one reference object with a selected one replacement object image responsive to the correlation; and

compositing at least one replacement object image with the first audiovisual presentation, responsive to the first audiovisual presentation, the user audiovisual information, the associating, and the correlation, for producing an integrated display audiovisual presentation, wherein at least a selected portion of the replacement object image replaces a selected portion of the first audiovisual presentation.

27. The method as in claim 26, wherein the correlation further comprises the method of recognizing at least a selected one reference object within an image of the first audiovisual presentation.

28. The method as in claim 27, wherein the recognizing further comprises the method of recognizing at least one reference point on the associated reference object.

29. The method as in claim 27, wherein the recognizing further comprises at least one of the methods of pattern recognition and image recognition.

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30. The method as in claim 28, wherein the first audiovisual presentation comprises encoded digital signal comprising a plurality of Motion Picture Expert's Group (MPEG) motion vectors, and wherein the correlation further comprises the method of transforming at least a selected one recognized reference point responsive to a selected one of the plurality of MPEG motion vectors.

31. The method as in claim 26,  
wherein the compositing further comprises the method of transforming the selected one replacement object image associated with the selected one reference object;  
wherein the transforming is at least one of the methods of morphing, mapping, stretching, shrinking, rotating, scaling, zooming, curling, shearing, and distorting.

32. The method as in claim 26,  
wherein the user audiovisual information further comprises user object geometric information;  
wherein the correlating further comprises the method of recognizing at least a selected one reference object within the first audiovisual presentation; and  
wherein the compositing further comprises the method of transforming the user object geometric information responsive to the recognizing, producing transformed user object geometric information.

33. The method as in claim 32,  
wherein the replacement object image comprises texture map image data representative of at least one selected user object as viewed from at least one predefined viewing position relative to the selected user object; and  
wherein the compositing further comprises the method of selecting a portion of the texture map image data responsive to the correlation.

34. The method as in claim 33, wherein the compositing further comprises the method of mapping the selected portion of the texture map image data onto the transformed user object geometric information, producing a replacement object image.

5 35. The method as in claim 26,  
wherein the first audiovisual presentation further comprises a time-ordered sequence of video images;

wherein the user audiovisual information further comprises a time-ordered sequence of user images; and

10 wherein the association further comprises the method of selectively associating a plurality of the time-ordered sequence of user images each respectively with selected ones of the time-ordered sequence of video images.

36. The method as in claim 30, wherein the first audiovisual presentation further comprises a time-ordered sequence of video masks; and

15 wherein the correlation further comprises the method of selecting a portion of the first audiovisual presentation responsive to at least a selected one of the video masks and at least a selected one of the MPEG motion vectors.

20 37. A system for providing an integrated display audiovisual presentation, said system comprising:

a first audiovisual presentation comprising a selected portion and having at least one reference point associated with a location on a selected one reference object and at least one reference object having at least a selected portion of a selected replacement object image associated with at least a selected one replacement point;

25 wherein the selected one reference object is replaced with a selected one replacement object image responsive to an association determined responsive to a



correlation of at least one selected reference point with at least one selected replacement point.

38. The presentation system as in claim 37, wherein the correlation is responsive to recognizing at least a selected one reference object within the first audiovisual presentation.

39. The presentation system as in claim 38, wherein the recognizing is at least one of pattern recognition and image recognition.

40. The presentation system as in claim 37, wherein the first audiovisual presentation comprises encoded digital signal comprising a plurality of Motion Picture Expert's Group (MPEG) motion vectors, and wherein the correlation is further responsive to a selected one of the plurality of MPEG motion vectors.

41. The presentation system as in claim 37, wherein the selected one replacement object image is transformed by at least one of morphing, mapping, stretching, shrinking, rotating, scaling, zooming, curling, shearing, and distorting prior to the replacing.

42. The system as in claim 37, wherein the replacement object further comprises user object geometric information that is transformed, producing transformed user object geometric information, responsive to the recognition of at least one selected reference object within the first audiovisual presentation, prior to the replacing.

43. The system as in claim 37,

wherein the replacement object image is a selected portion of a texture map image; and

wherein the texture map image data is representative of at least one selected user object as viewed from at least one predefined viewing position relative to the selected user object.

44. The system as in claim 43, wherein the selected portion of the texture map image is mapped onto transformed user object geometric information, prior to the replacing.

45. The system as in claim 37, wherein the first audiovisual presentation further comprises a time-ordered sequence of video images, and wherein the association further selectively associates a plurality of replacement object images each respectively with selected ones of the time-ordered sequence of video images prior to the replacing.

46. A system for processing a video input signal having an associated original video image, the system comprising:  
addressable storage providing wireframe memory, a texture map memory, a processor instruction memory, and a secondary image memory;  
means for generating orientation signals responsive to the video input signal;  
means for generating a wireframe geometry signal responsive to the orientation signals and to the wireframe memory;  
an encoder, responsive to the video input signal, for generating encoder signals;

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means for selecting respective ones of the encoder signals as a masked area of selected encoder signals responsive to the encoder signals and the orientation signals;

wireframe compositing apparatus responsive to the selected encoder signals and the wireframe signals to generate a composited wireframe signal;

5 texture map compositing apparatus responsive to the composited wireframe signal and to the texture map memory for generating a composited wireframe and texture map signal; and

a blender responsive to the video input signal and the composited wireframe and texture map signal for generating a final composited video signal comprising the image with proper orientation mapped as a part of the original video image onto the identified predefined video object for which the orientation has been determined.

47. The system as in claim 46, wherein the wireframe memory provides for output of the wireframe signal by look-up in a stored data table of wireframe data signals indexed by orientation.

48. The system as in claim 47, wherein the wireframe signal is extrapolated utilizing two defined orientations.

49. The system as in claim 48, wherein the wireframe data signal is generated responsive to stored orientation data.

50. The system as in claim 46, wherein the motion vector encoder is an MPEG encoder.

51. The system as in claim 46, wherein the wireframe compositing apparatus is responsive in accordance with predefined processing logic.

52. The system as in claim 46, wherein the encoder is a motion vector encoder the encoder signals are motion vector signals.

53. The system as in claim 52, wherein a processor generates motion vectors responsive to the processor instruction memory, the buffered original video input signal, and responsive to predefined instruction logic.

5 54. The system as in claim 46, wherein the system is responsive to expression cues within the video input signal for selecting a portion of the original video image for tracking and substitution.

10 55. The system as in claim 46, wherein the original video image is further comprised of a target image for detection by the system for use in tracking.

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